

Claims

1. Process for processing preforms made from thermoplastic plastic and intended for blow molding into containers and in which the preforms are manufactured in an injection molding tool using injection molding technology and after removal from the injection molding tool are deformed, characterized in that the preforms (1) are deformed by the action of negative pressure.
2. Process according to claim 1, characterized in that the negative pressure acts externally on the preforms (1).
3. Process according to claim 1, characterized in that the negative pressure acts internally on the preforms (1).
4. Process according to one of claims 1 to 3, characterized in that negative pressure is applied to the preforms (1) inside a cooling device.
5. Process according to one of claims 1 to 4, characterized in that negative pressure is applied to the preforms (1) through a porous material.
6. Process according to one of claims 1 to 5, characterized in that the negative pressure is supplied to the porous material through negative pressure channels (10).
7. Process according to one of claims 1 to 6, characterized in that the preforms (1) are locally impinged upon by a pressurizing medium.

8. Process according to one of claims 1 to 7, characterized in that the preforms (1) are temporarily impinged upon by a pressurizing medium.

9. Process according to one of claims 1 to 8, characterized in that the application of negative pressure to the preforms (1) takes place through local porous inserts (3).

10. Process according to one of claims 1 to 9, characterized in that local porous inserts (3) are temporarily and controllably connected by means of control valves (19) to a pressure source (20) and to one or more negative pressure sources (21).

11. Process according to one of claims 1 to 10, characterized in that deforming of the preform (1) is carried out using a porous mandrel (22).

12. Process according to one of claims 1 to 11, characterized in that a local negative pressure is exerted on the preform (1) from the mandrel (22).

13. Process according to one of claims 1 to 12, characterized in that the deformation of the preform (1) is carried out as an intermediate step in a single-stage injection-blow process.

14. Process according to one of claims 1 to 12, characterized in that the deformation of the preform (1) is carried out as an intermediate step in a dual-stage injection-blow process.

15. Device for processing preforms from a thermoplastic plastic, intended for blow-molding into containers and manufactured in an injection molding tool using injection molding technology, and in which the preforms are at least for part of their area acted upon by a cooling device, characterized in that the cooling device is at least for part of its area made of a porous material.

16. Device according to claim 15, characterized in that the porous material is located in the area of a cooling sleeve.

17. Device according to claim 15 or 16, characterized in that the porous material is formed as an insert (3), which is held in place by a frame (2).

18. Device according to one of claims 15 to 17, characterized in that at least one negative pressure channel (10) is located in the region of the insert (3).

19. Device according to one of claims 15 to 18, characterized in that at least one cooling channel (11) is located in the area of the insert (3).

20. Device according to one of claims 15 to 18, characterized in that at least one cooling channel (11) is located in the area of the frame (2).

21. Device according to one of claims 15 to 20, characterized in that the insert (3) is covered for at least part of its area by a seal (13).

22. Device according to one of claims 15 to 21, characterized in that the negative pressure channel (10) extends into the area of a cavity (14) of the insert (3).

23. Device according to one of claims 15 to 22, characterized in that the insert (3) is provided with a pressurizing medium connection (17).

24. Device according to one of claims 15 to 23, characterized in that the frame (2) has at least two inserts (3) made from a porous material and spatially separated from each other.

25. Device according to one of claims 15 to 24, characterized in that the separate porous inserts (3) can be controllably connected to a pressure source (20) and to one or more negative pressure sources (21).

26. Device according to claim 25, characterized in that the inserts (3) can be connected to the pressure source (20) and at least one negative pressure source (21) by at least one control valve (19).

27. Device according to one of claims 15 to 26, characterized in that the mandrel (22) is formed of a porous material for at least part of its area.

28. Device according to one of claims 15 to 27, characterized in that the mandrel (22) is covered by a seal (24) for at least part of its area.

29. Device according to claim 27 or 28, characterized in that the mandrel (22) is covered by a seal (26) in the region of its round end (25).

30. Device according to one of claims 15 to 29, characterized in that the mandrel (22) is provided with at least one membrane (29) which defines a distribution chamber (28).

31. Device according to one of claims 15 to 30, characterized in that the porous material is made from a thermally conductive material.

32. Device according to claim 31, characterized in that the porous material is a porous metal, such as aluminum, steel or a copper alloy.

33. Device according to one of claims 15 to 30, characterized in that the porous material is a sintered metal.